Office of Second Line of Defense Program Overview

Industry Day

April 18-19, 2006

Presentation Overview

- Second Line of Defense (SLD) Overview
- Program Descriptions
  - Core Program
  - Megaports Program
- SLD Process Summary
- Interagency Relationships
- Summary

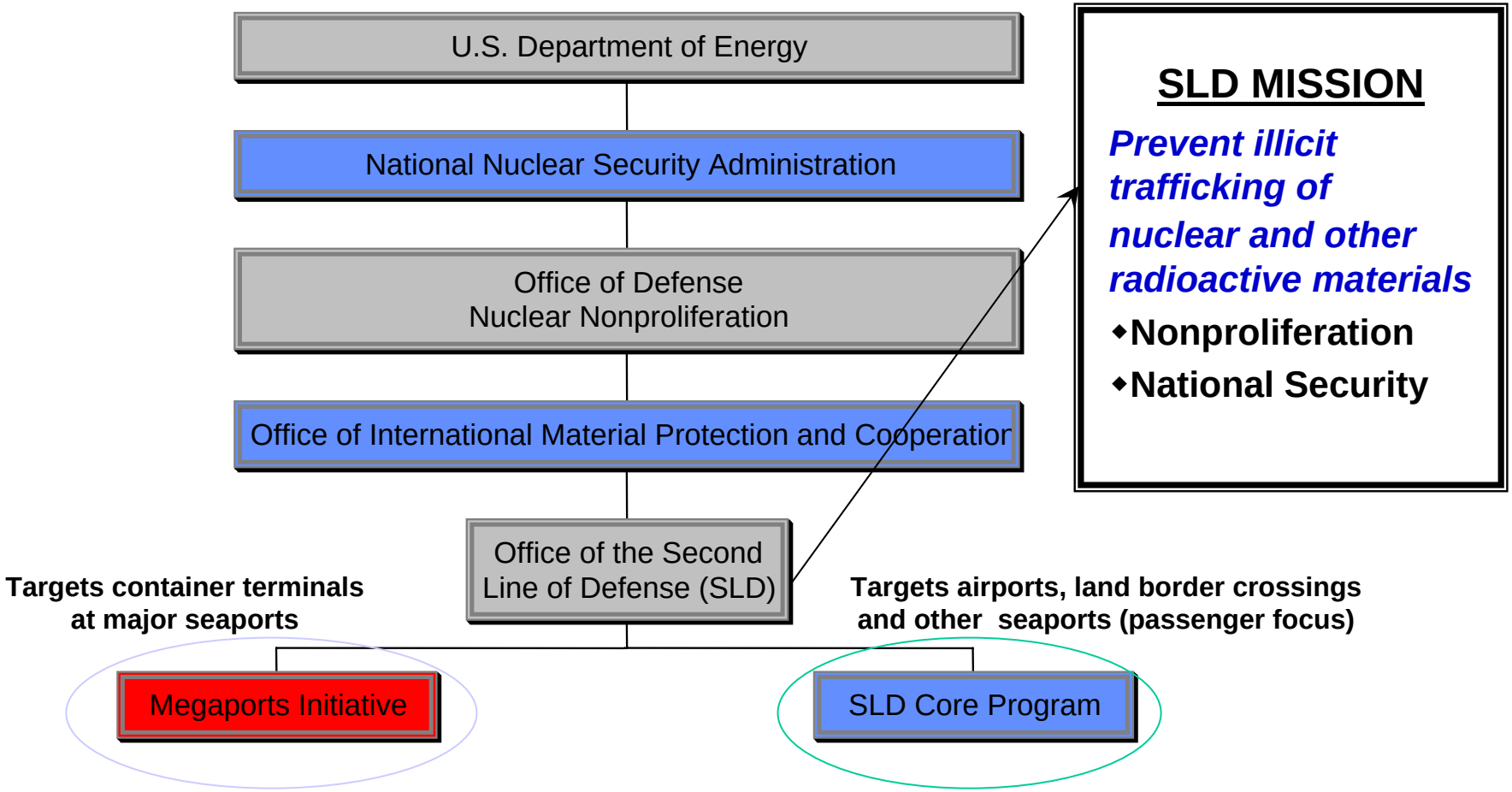
Second Line of Defense (SLD) Program Goals

- Cooperative effort for mitigating risk of illicit trafficking through:
  - Search, detection, and identification of nuclear and other radioactive materials
  - Development of response procedures and capabilities
  - Deterrence of future trafficking in illicit nuclear and nuclear-related materials

SLD Organization

- Two Primary Program Areas
  - Core Program
    - Russia, Former Soviet Union States, and other key countries
    - Pedestrian and cargo focus
    - Maintenance of legacy equipment installed under other U.S. Government Programs
  - Megaports Initiative
    - Large International Seaports
    - Container cargo focus
    - Coordinated closely with U.S. Bureau of Customs and Border Protection's Container Security Initiative

SLD Organization Within DOE/NNSA



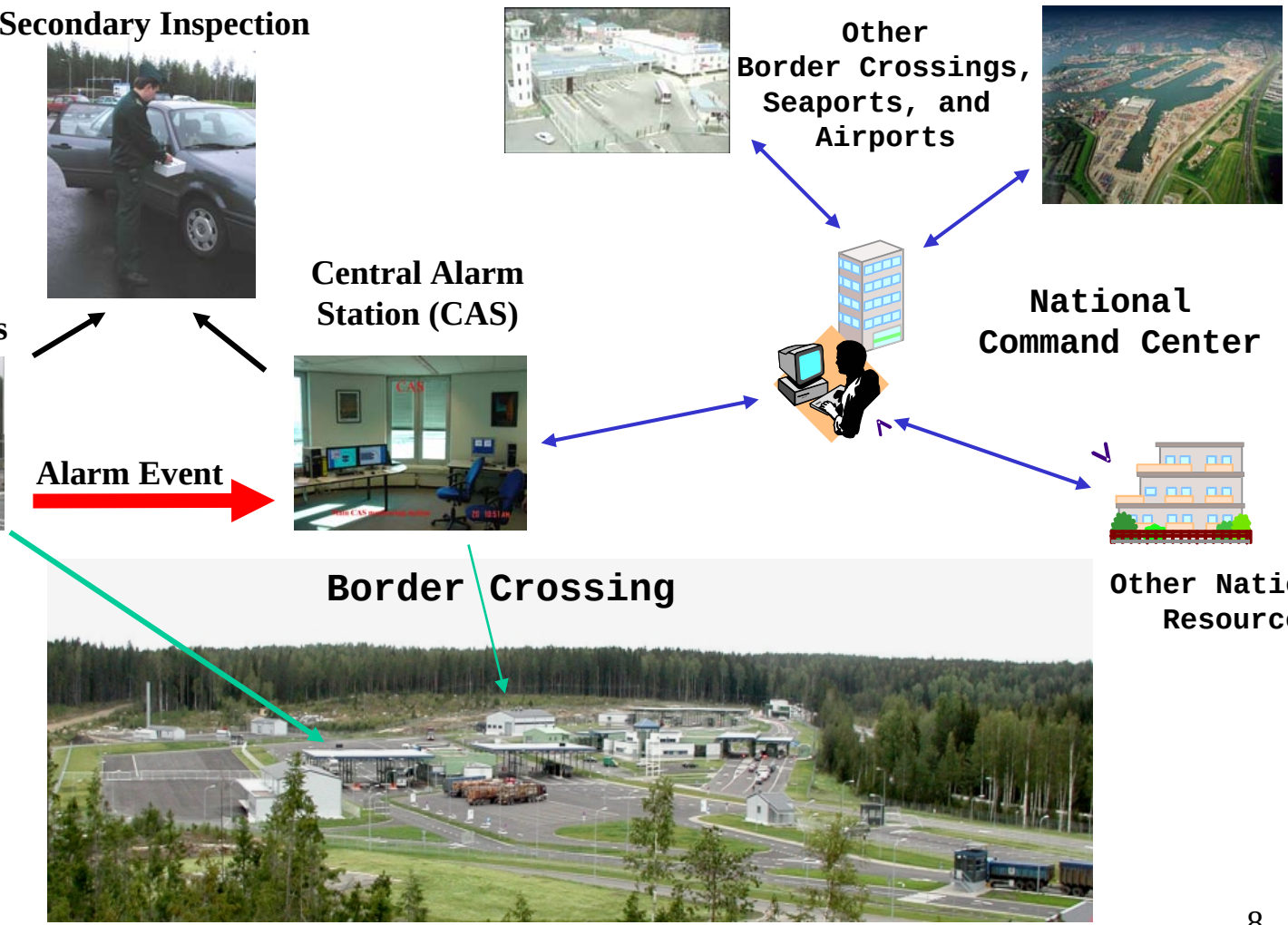
SLD's Interagency Relationships

- DHS Domestic Nuclear Detection Office (DNDO) under DHS
- Partnership with CBP/CSI on deployment of portal monitors at seaports
- Cooperation with Dept of State to address emerging concerns
- Coordination with DOD

SLD Overview

- The SLD Program is an international, cooperative nonproliferation program
  - Work conducted under agreements (legally or non-legally binding)
  - Host country takes custody of and operates equipment
- Core & Megaports Implementation includes:
  - Country and site prioritization
  - Negotiating and finalizing agreements with host countries
  - Equipment procurement
  - Site surveys, designs, installation/construction and acceptance testing
  - Training
  - Maintenance and Sustainability

SLD System Concept



SLD Equipment

Types of equipment typically provided:

- *Fixed*
  - **Vehicle monitors**
  - **Rail monitors**
  - **Pedestrian monitors**
- *Handheld*
  - **Personal Radiation Pagers (PRDs)**
  - **Radioisotopic Identifiers (RIIDs)**
  - **Radiation Survey meters**

TSA Survey Meter

Personal Radiation Detectors (pagers)

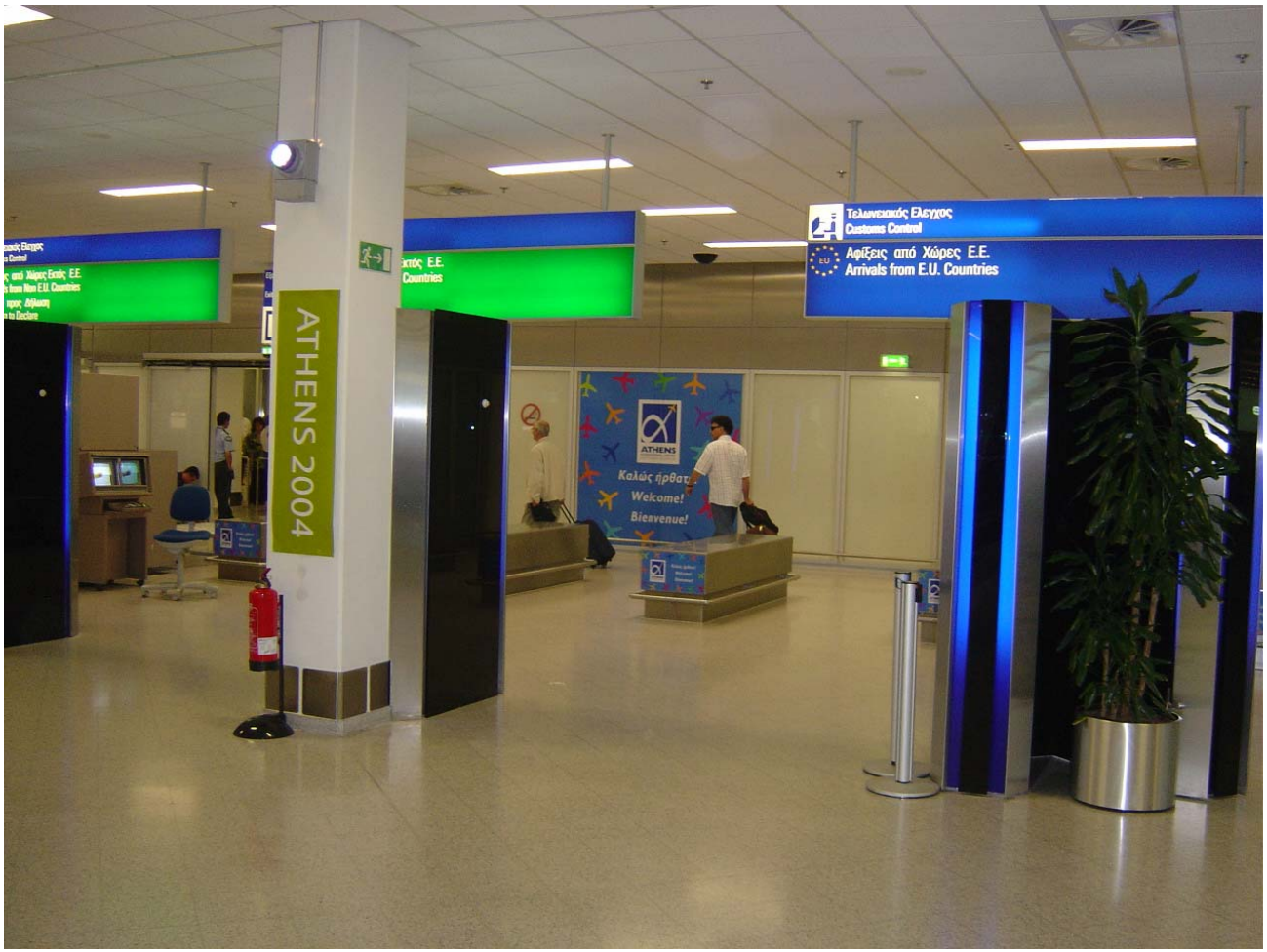
Radioisotopic Identifiers (RIID)

TSA Vehicle Monitor

TSA Vehicle Monitors

TSA Rail Monitor

TSA Pedestrian Monitor



Land Border Crossing

Vehicle Monitors

Pedestrian Monitors

Aspekt Portal Monitors

SLD "Life of the Program" Goals

- Work scope has been identified for the SLD program through FY13
  - Core: ~ 350 sites in 30 countries
  - Megaports: ~ 70
- Scope could grow or decrease, dependent upon funding

SLD Program Descriptions

SLD Core Program

- Provide radiation detection systems and training to ports in Russia, Former Soviet Union States and other high priority countries
- Core equipment scans pedestrians, vehicles and trains
  - Airports, land crossings and seaports included
  - Cargo *and* passengers scanned
- Maintenance of legacy equipment installed under other U.S. Government Programs

Core FY 07 FYNSP

- Out year forecasting highly uncertain
- Budget & site counts subject to change
- Not all these sites upgraded under DICCE*

	FY07	FY08	FY09	FY10	FY11
FYNSPS	$83.9M	$73.1M	$94.6M	$66.8M	$71.2M
Sites	63	32	51	32	35

*** ~25 Russian sites not under DICCE contract**

What Elements of Core are Covered under DICCE?

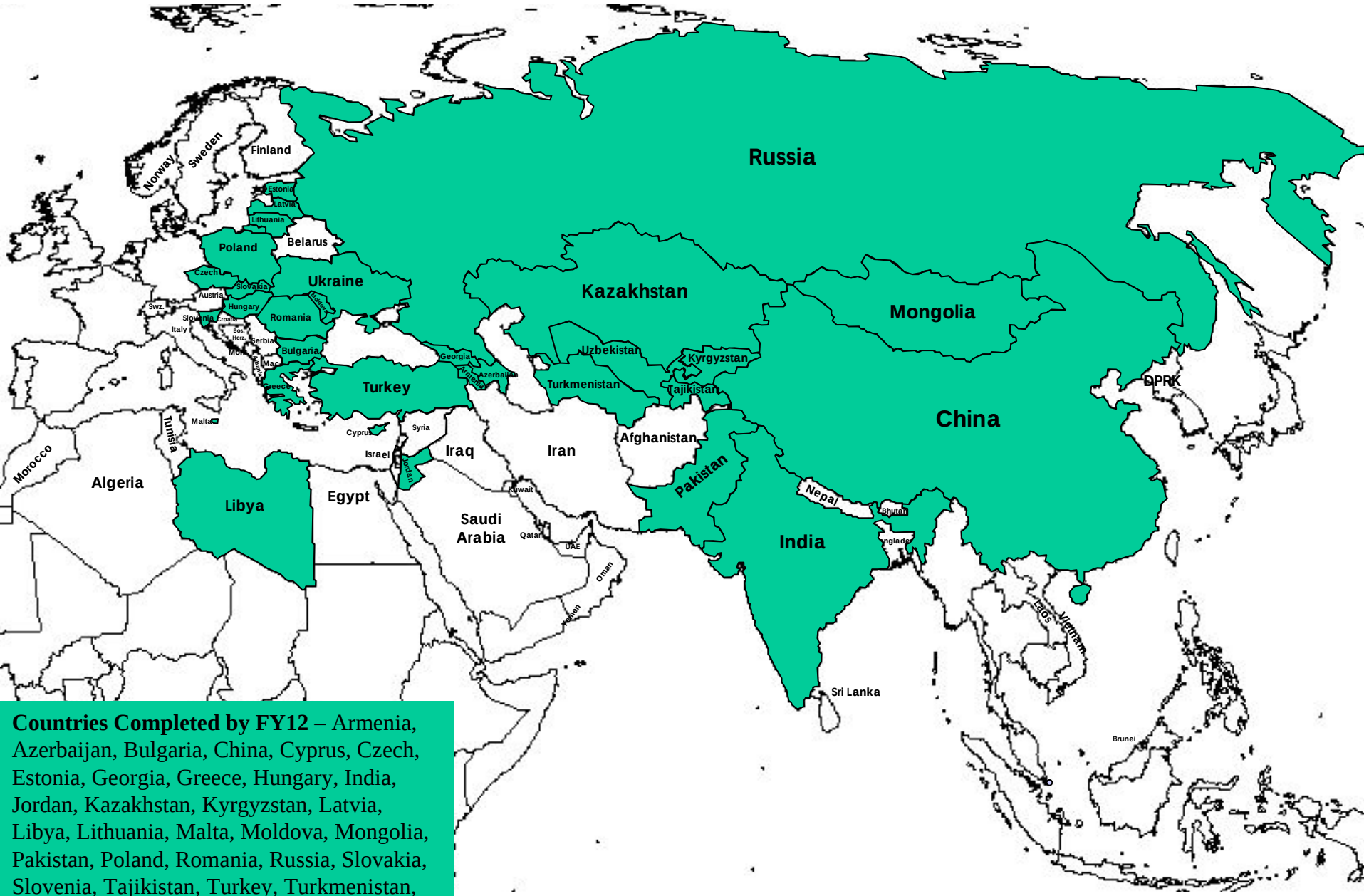
Design/Installation/ Coms in Russia	*Legacy Maintenance Program*	*Design/Installation/ Coms in Rest of World*
NO	NO	YES*

* Scope of work depends on specific country/site

Core Program Status

- Installations to date
  - ~100 sites will be equipped in Russia through FY06 (12 sites in FY06)
  - In support of the Olympics, 4 sites were equipped in Greece in FY04
  - One site in Lithuania
  - ~10 sites in other countries (Ukraine, Slovenia, Georgia, Azerbaijan) will be equipped in FY06
- Design/construction underway in Ukraine, Slovenia, Georgia and Azerbaijan
- SLD Core is in various stages of engagement with seven additional countries

Core Completion Map



Countries Completed by FY12 – Armenia, Azerbaijan, Bulgaria, China, Cyprus, Czech, Estonia, Georgia, Greece, Hungary, India, Jordan, Kazakhstan, Kyrgyzstan, Latvia, Libya, Lithuania, Malta, Moldova, Mongolia, Pakistan, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan

SLD Legacy Maintenance Program Overview

- Several USG agencies installed radiation detection equipment after the collapse of the Soviet Union
- Equipment installed in more than 20 countries around the world, but did not incorporate a long-term sustainability or maintenance strategy into deployment projects
- The equipment deployed is only capable of detecting strong gamma radiation
- Maintenance monitors will be replaced with full installations as Core countries sign agreements
- Program entirely phased out by end of FY08 and not part of DICCE scope

Megaports Initiative Mission

- **<u>MISSION</u>:** ***To provide equipment, training, and technical support to international partners to enhance their ability to detect, interdict and deter illicit trafficking of special nuclear and other radioactive materials in the global maritime system.***
- ***This mission is accomplished by:***
  - Scanning containers at high volume ports
    - **While gate traffic can easily be scanned (includes rail), transhipped containers present significant challenges**
  - Scanning containers at ports of high risk
    - **Scans gate traffic in areas of concern**
    - **Increases likelihood that material will be detected before it is incorporated into an improvised nuclear device**
  - Scanning containers in conjunction with NII scans on U.S. bound containers under U.S. Customs' Container Security Initiative

Megaports FY 07 FYNSP

- Out year forecasting highly uncertain
- Budget & port counts subject to change

	FY07	FY08	FY09	FY10	FY11
FYNSPS	$40.1M	$75.7M	$82.4M	$91.8M	$95.1M
Ports	3	5	9	18	19

Megaports Progress to Date

National Nuclear Security Administration

Implementation complete:

- Netherlands (Port of Rotterdam)
- Greece (Port of Piraeus)
- Sri Lanka (Port of Colombo)
- Spain (Port of Algeciras)
- Singapore: Operational testing
- Bahamas (Port of Freeport)

Implementation phase:

- Belgium
- Philippines
- Thailand
- Dubai, UAE
- Honduras
- Oman
- Israel
- China

Discussions underway:

- NNSA representatives are at various stages of engagement with countries throughout Europe, Asia, the Middle East, the Americas and the Caribbean

SLD Process Summary

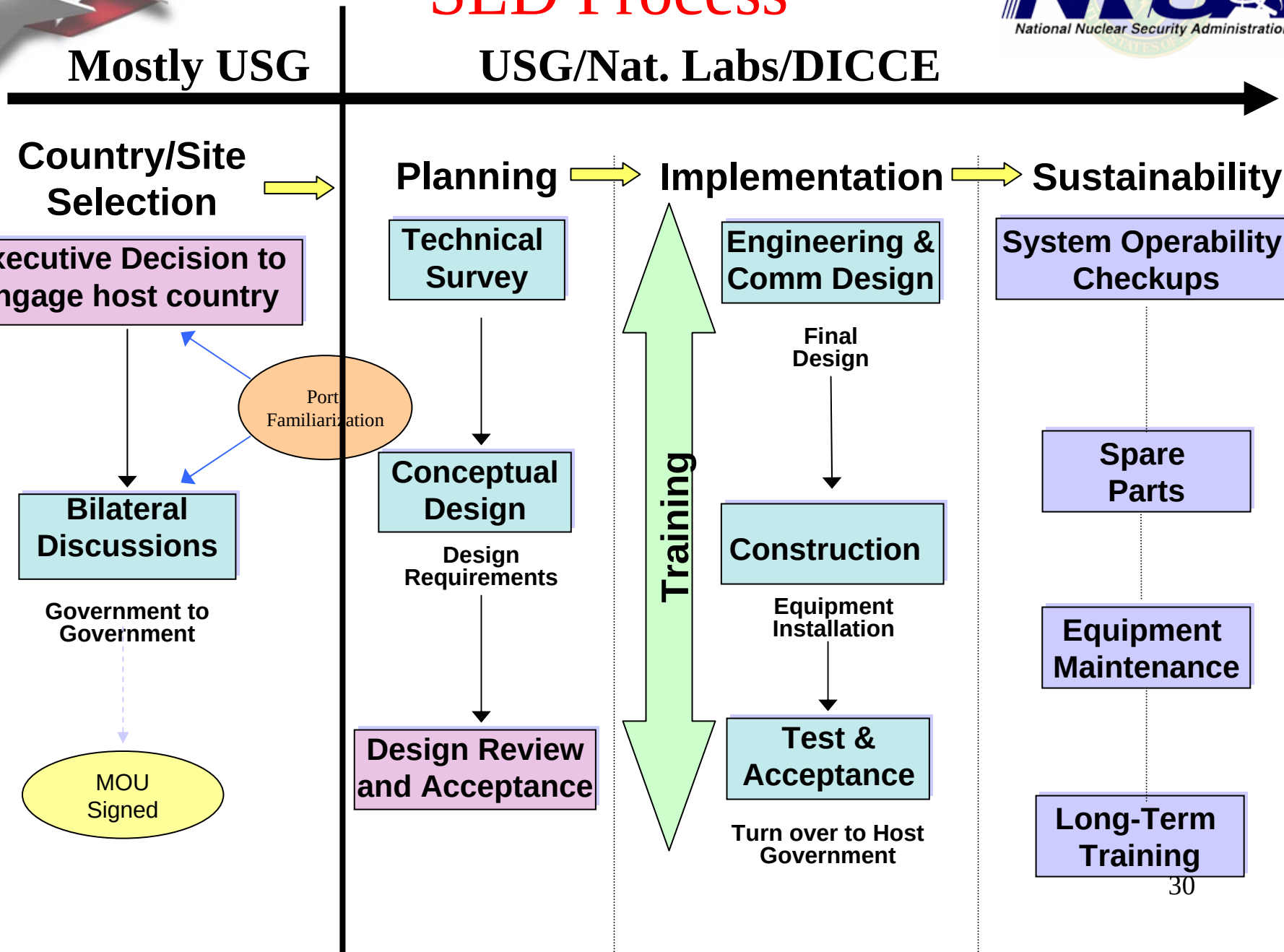
SLD Program Top-Level Roles

- SLD Program Office
  - Country/site prioritization
  - DOE/Host Country agreements (including data sharing and tax exemption)
  - Administer contracts
  - Oversee country-level activities
  - Interagency/Embassy coordination
- National Laboratories
  - Technical support for prioritization
  - Technical assistance and surveys
  - Communication support
  - Data collection & analysis
  - Project Management
  - Training

SLD Program Top-Level Roles

- DICCE Contractor
  - Design, construction and integration for the installation of portal monitors and associated equipment
  - Communications hardware and software design and installation
  - Logistics including shipping, in-country storage, transportation, translation, and interpretation
  - Equipment and materials procurement
  - Project Controls
  - HQ Support
  - Technical Consulting/Engineering
- Host government/organizations
  - Major Stakeholders – buy-in is crucial
  - Responsible for long term operation and maintenance
  - Potential cost sharing

SLD Process


Mostly USG
USG/Nat. Labs/DICCE
Country/Site Selection
Planning
Implementation
Sustainability
Executive Decision to engage host country
Port Familiarization
Bilateral Discussions
Government to Government
MOU Signed
Technical Survey
Conceptual Design
Design Requirements
Design Review and Acceptance
Training
Engineering & Comm Design
Final Design
Construction
Equipment Installation
Test & Acceptance
Turn over to Host Government
System Operability Checkups
Spare Parts
Equipment Maintenance
Long-Term Training

Country/Site Selection

- Ports/Sites chosen using established methodology
  - Site Prioritization (DOE/NNSA with National Lab support)
    - US modeling and information combined with host country inputs
- Agreement negotiated by DOE/NNSA
  - Process highly unpredictable
- Agreement signed
  - VAT, permits, other issues might remain to be resolved
- Sustainability Plan negotiated

Planning

- Surveys
  - Port survey conducted (Survey conducted by Megaports only - this might be combined with engineering survey)
    - typically involves labs & DOE
  - Resulting documents
    - **DRD** (physical layout of the monitors and the related communications infrastructure)
    - **CSDRD or Standard Design modified** (communications requirements)
    - **Generic or Site-Specific CONOPS** (concept of operations for the site/port)
  - Engineering survey
    - Typically involves labs, DOE and DICCE contractor
    - General arrangement (GA) drawings, Communications System Requirements and technical solutions & cost proposals
    - Core typically conducts only engineering survey

Planning

- Scoping meetings held after surveys but before submission of technical and cost proposal to define roles and responsibilities
  - DOE/NNSA, Labs, DICCE Contractor
  - Used for proposal development
  - May be used to formally approve contract deliverables
- Stakeholder buy-in to GAs and Communications System Requirements and/or technical solutions prior to final design
  - DOE/NNSA, Labs, DICCE Contractor
  - Host Country Government/organizations

Implementation

- While basic process remains the same, specific roles and responsibilities varies by country
  - Host government contributions
  - Terminal Operator requirements
  - Cost sharing
  - Innovative approaches may not require DICCE services
  - Capabilities of host country contractors
- Engineering design finalized
  - DICCE contractor
  - Host-country firm with DICCE contractor oversight/approval
- Communications design finalized
  - For many Core sites – use standard design
  - May require integration with host government/organization operating systems

Implementation

- Construction
  - DICCE contractor identifies subcontractor for construction
  - Level of DICCE involvement varies by country/site
- Construction Readiness Determination prior to start of construction
- Once construction is completed, DOE/NNSA project team is responsible for testing and accepting the system
  - DICCE development of acceptance test plan
  - DOE-conducted System Level Acceptance Test
- Operational Evaluation period might follow acceptance

Construction Process

Training

- DOE Lab has lead for training, which is provided in:
  - Detection, identification, and interdiction of WMD smuggling with emphasis on SNM and other radioactive materials
  - Use of equipment
  - Response to alarms
  - Limited maintenance of systems
- Training products include:
  - In-country courses using mobile training teams or training centers
  - HAMMER courses held at Pacific Northwest National Laboratory in Richland, WA with emphasis on field exercises using actual SNM
  - Train-the-trainer curriculum development
- DICCE contractor will support training activities, especially in communications and maintenance areas

Sustainability

- Ensuring systems operate as designed is critical
  - Most systems maintained by local/regional contractors
- Spare parts often provided initially
- Maintaining highly trained operators critical to success
  - Train-the-trainer
- Potential DICCE involvement

Summary

- SLD is a dynamic program that has experienced significant growth over the past two years
- Success is largely dependent upon our ability to establish and maintain productive and cohesive teams, comprised of DOE/NNSA, National laboratories, and contractor partners
- DICCE contractor will play critical role